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THE ACCEPTANCE OF CARPET AS A SCHOOL FLOOR COVERING. AN ADDRESS TO MASSACHUSETTS ASSOCIATION OF SCHOOL COMMITTEES, (CHICOPEE, MASSACHUSETTS, MAY 21, 1964).

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THIS SPEECH DISCUSSES THE ACOUSTICAL, INSULATIVE, LOW-MAINTENANCE FLOOR COVERING KNOWN AS CARPET AND ITS USE IN SCHOOL FACILITIES. IT REVIEWS THE BASIC INDEPENDENT RESEARCH WHICH HAS BEEN DONE, DOCUMENTING THE ACOUSTICAL AND MAINTENANCE PROPERTIES AS A SCHOOL FLOOR COVERING, AND TRACES THE ACTUAL EXPERIENCE OF A NUMBER OF CARPETED SCHOOLS. CARPETING MEETS THE PERFORMANCE QUALITIES OF MODERN DESIGN TRENDS IN SCHOOL PLANTS. CARPET HAS BEEN, AND IS, WIDELY USED FOR BOTH AESTHETIC AND NOISE CONTROL PURPOSES AND, WITH ALL FACTORS CONSIDERED, AT NO GREATER "TOTAL USE" COST. CARPETING HAS A NOISE REDUCTION COEFFICIENT (NRC) OF .55 WHICH IS AS EFFECTIVE AS MOST MATERIALS ON THE MARKET TODAY MANUFACTURED FOR THE EXCLUSIVE PURPOSE OF NOISE REDUCTION. BY TREATING THE FLOOR ACOUSTICALLY, CEILINGS CAN BE LEFT HARD AND REFLECTIVE FOR BETTER VOICE PROJECTION TO ALL PARTS OF THE ROOM. CARPETING VIRTUALLY ELIMINATES IMPACT NOISE AND ALSO CREATES A POSITIVE HABIT DEVELOPMENT BY STUDENTS USING THESE AREAS. WITH REGARD TO MAINTENANCE, ALL TESTS CONDUCTED FROM THE FIRST IN 1955 POINT TO VERY SUBSTANTIAL SAVINGS WITH CARPETED FLOORS. IT HAS BEEN FOUND THAT CARPET MAINTENANCE COSTS ARE APPROXIMATELY 50 PERCENT LESS, UNDER HEAVIEST USE CONDITIONS. THE ELIMINATION OF OTHER WALL OR CEILING ACOUSTICAL TREATMENTS IN CARPETED AREAS CAN OFFSET OR EQUALIZE INITIAL MATERIAL COST. CARPETED FLOORS WILL LESSEN FUEL CONSUMPTION. THE USE OF CARPETING IN AUDITORIUMS, ENTRANCE WAYS, AND AS A REPLACEMENT FLOOR COVERING IS DEALT WITH BRIEFLY. (RK)

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to

MASSACHUSETTS ASSOCIATION OF SCHOOL COMMITTEES
Chicopee, Massachusetts

May 21, 1964

THE ACCEPTANCE OF CARPET AS A SCHOOL FLOOR COVERING

With some 60,000 new public school classrooms being built this year we are stating the obvious by saying that if school committees concerned themselves with school construction alone, they could tally a lot of overtime.

To keep abreast of enrollment demands, decisions must be made rapidly...and accurately - which makes all the more amazing the fact that today's schools are widely acknowledged as true bargains from both design and cost viewpoints.

To make accurate decisions on new school construction materials, objective information is a necessity.

We are very pleased to have the opportunity to provide objective information on school floor coverings ... and on one type in particular which is now being used by several hundred schools in the country. It is the acoustical, insulative, low-maintenance floor covering known as CARPET.

I will review the basic independent research which has been done, documenting the acoustical and maintenance properties of carpet as a school floor covering, and trace the actual experience of a number of carpeted schools.

Mr. Millard Smith, Principal of Shaker High School, Newtonville, New York, where the Henry Blattner designed high school contains 25,000 square feet of carpet in all academic areas, will then tell you of his experiences with this carpeted school and assess the value of a carpeted school from an educational viewpoint.

THE TREND TO CARPETED SCHOOLS

The very idea of wall-to-wall carpet in a school classroom may seem novel and even controversial, but it is not entirely new. Many of you have had direct experience with carpet in schools and realize that this trend to soft floor coverings was not stimulated artificially but originated with school officials and architects who looked for, and found, a floor covering with performance qualities that would meet the needs of modern design trends in school plants.

School floors are changing as the rest of the school plant changes. Although school progress is rarely measured in terms of school floors, they do provide a yardstick which shows remarkable advances in design of, and attitude toward ... today's schools.

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An Austin, Texas architect with whom I talked recently looks upon the whole process as one of natural evolution, pointing out that the great-grandparents of today's school children looked upon dirt floors as a necessary curse; their grandparents experienced the comparative comfort of oiled and splintery board floors in schools; parents lived through the roughly sanded wood and linoleum phase, while present day students are largely quartered on clattering tile.

Throughout the whole process little apparent thought has been given to the possibility of using the floor surface and floor coverings for any purpose other than to cover the ground.

The floor remained hard, noisy and cold surface, which, in the estimate of Educational Facilities Laboratories, the non-profit arm of the Ford Foundation, "institutionalized the environment, made teaching harder, and was thought (erroneously) to delight the janitor."

As soon as it began to be realized that the floor surface could be used to eliminate the great majority of troublesome and unwanted noises within a classroom ... that acoustical problems could be solved at the floor level rather than ceiling level, leaving the ceilings free for improved lighting systems ... that floor maintenance costs could be reduced 50% ... that communications were vastly improved and learning spaces uplifted and dignified ... that less acoustical separation might be needed between classrooms ... that flexibly designed "Open Plan" schools could become a practical reality by retaining constant acoustical balance at the floor level ... CARPET BEGAN TO BE USED!

Schools began to reflect what profit and loss hotels, restaurants, banks, office buildings ... even bowling alleys and hospitals ... had known for years and had accepted as a matter of course. Namely, that upgraded environment has a very positive effect on the morale and working habits of employees and on the pending habits of customers. Carpet has been, and is, widely used for both aesthetic and noise control purposes and, with all factors considered, at no greater "total use" cost.

We are now beginning to care how the student feels about the place in which he works, in the same way we have long cared about how people feel and function in a profit-making organization.

Quoting Dr. Harold B. Gores, President of Educational Facilities Laboratories, from the April issue of "The Nation's Schools" magazine:

> "Currently, school libraries are being carpeted as a matter of routine in most communities. Carpeting beyond the library, however, is still something of a struggle in all but a handful of districts.
>
> "The controversy over acoustic floor covering will rage for some time. Studies of comparative costs tend to show that over the long haul of the years, carpeting will save money, especially if all factors are included - lower maintenance costs, possiblity of reducing the number of partitions that would otherwise have to be constructed, likelihood of reduction in fuel consumption (estimated by L. P. Herrington at 5%), increase in reflected light from ceilings no longer designed around sound absorption, reduction of micro-organisms floating in the air, and the greatest factor of all --- though probably immeasurable except by testimony --- the affect on the student's morale and how he feels about the place in which he works.
>
> "But, whether carpeting is cheaper is not the central question. What is central is whether an acoustical floor covering will help children to see better, hear better, act better and learn more. An increasing number of educators believe this to be the case."

So says Dr. Gores.

Incidentally, Educational Facilities Laboratories was one of the first to endorse the concept of acoustical floor covering for schools. Dr. Gores believes that we will see more use of the product being made as soon as we get over the misconception that softening the environment softens education and also realize that money might be saved.

ACOUSTICAL SUPERIORITY OF CARPET

Nine years ago, Dr. Cyril Harris, of Columbia University, performed the first acoustical research on carpet and determined, among other things, that carpet has a noise reduction coefficient of .55 which is as effective as most materials on the market today manufactured for the exclusive purpose of noise reduction. He also found that by controlling noise at its source, rather than allowing noise to be created and trying to control it with an acoustical ceiling, noise could be reduced in a room by as much as 50%. This was later confirmed in field tests by Professor Harry Rodman and Professor Carl Kunz of Rensselaer Polytechnic Institute.

The senior high wing of Shaker High School had carpet and served as their test site. The almost identical and connected junior high school wing remained uncarpeted and served as a control area. Professors Rodman and Kunz also pointed out that a double purpose might be served by treating the floor acoustically since ceilings could be left hard and reflective for better voice projection to all parts of the room. It was also found that carpet virtually eliminated impact noises which, according to most educators, are the troublesome noises of the school.

This idea is also supported strongly by other distinguished names in the acoustical field. In March I attended an acoustical seminar at the Plaza Hotel in New York at which five of the country's most respected acoustical firms were represented. All agreed on the importance of floor level control of noise in schools and on the equal importance of hard, reflective ceilings for improved student-teacher communications.

EDUCATIONAL FACILITIES LABORATORIES STUDY

Other evidence of the growing recognition of this need might be found in the report by architect John Lyon Reid and acoustical expert Dariel Fitzroy, on the results of a nationwide acoustical study of schools which they conducted under the sponsorship of the Educational Facilities Laboratories. The report is called "Acoustical Environment of School Buildings." Two carpeted schools were surveyed (Shaker High School and Andrews, Texas High School) and were reported as being acoustically superior with an overwhelmingly "excellent" rating from teachers and tests.

References were made at several points in the introductory text to the growing importance of carpet, or acoustical floors, because of the general and positive contributions to the school environment. Co-author of the study, Dariel Fitzroy, says in the light of his experience:

> "Carpets in the corridors and classrooms of schools may become an essential fundamental in the planning of schools in the immediate future. In the light of modern school requirements, carpeting gives evidence of being a necessity."

Closely related to the acoustical superiority of carpet on the floor in schools is the effect this "quietened" and "subdued" atmosphere has on the behavior pattern of students. Students seem to have more respect for the school, its furnishings and the activities which take place there.

Mr. Smith will have a good deal more to say about this.

ACOUSTICS IN THE LIBRARY

As Dr. Gores pointed out, schools first applied acoustical floor covering to the place where it was most obviously needed ... the library. Libraries are being rapidly carpeted with excellent results. The American Library Association, through their journal, has devoted considerable attention to this trend in recent months.

MAINTENANCE

Now let me give you a brief summary of the maintenance research which has been conducted.

All tests conducted from the first, in 1955, point to very substantial savings with carpeted floors. Obviously, there is no stripping, mopping, waxing, buffing and finishing necessary.

This was first documented through independent studies conducted by Industrial Sanitation Counselors of Louisville, Kentucky when, after studies of comparative floor maintenance costs of some of the country's largest carpet users, results showed carpet maintenance cost to be approximately 50% less under heaviest use conditions.

SHAKER HIGH SCHOOL MAINTENANCE

These findings were re-affirmed by the same organization in 1958 in a study of the Shaker High School carpet installation over a school year period. Again, carpet cost approximately one-half as much to maintain at a much higher appearance level when compared to traditional school floor coverings.

The tiled floors cost $350.75 per 1,000 square feet per year to maintain. By comparison, carpeted floors cost $176.61 per 1,000 square feet to maintain and at a much higher appearance level.

NEW MAINTENANCE

More recently, Inudstrial Sanitation Counselors rechecked their maintenance figures in a new study completed in February last year, covering 400,000 square feet of carpet. This time, the comparative maintenance costs study was extended to eighteen larger installations, among which were five carpeted schools. These included Shaker High School, Andrews High School, St. Luke's Elementary in Westport, Connecticut, Peter Pan School in Andrews, Texas and Foothill Junior College in Los Altos, California.

This new research showed that carpet's cost was still less than one-half that of other floor coverings. Comparative cost of carpet and vinyl tile, including annual amortized material cost showed carpet as costing $181.00 per 1,000 square feet per year ... tile cost $393.00 per 1,000 square feet per year.

It might appear that this is a comparison of perfectly maintained floors. Such is not the case. It is maintenance of an acceptable appearance level.

Clearly apparent throughout these studies, and many others not reported here, is that carpet maintenance costs are far lower than other types of floor coverings. Over large areas these savings could serve as the complete carpet replacement fund or free your custodial staff for more duties as work loads increase with larger enrollments and plants. This is scientific maintenance which too few schools practice.

A scientific approach to maintenance makes costs predictable. If you know your present floor maintenance costs, you can easily predict a 50% savings with carpet and a much higher appearance level.

Bear in mind that the maintenance savings do not include the structural savings made possible through use of acoustical floor coverings. The elimination of other wall or ceiling acoustical treatments in carpeted areas can often offset or equalize initial material cost.

It has been our observation, talking to school professionals, that these maintenance figures are looked upon with some skepticism ... only among educators or administrators who have not had direct experience with carpeted schools. The validity of these figures is confirmed in actual experience and, as a point of fact, we have had reports from a number of carpeted schools stating that the projected savings estimates are actually too conservative. We have had this reaction from office buildings also. One in particular, in Washington, D.C., estimated his savings in maintenance costs would pay for the carpet in a short two-year span.

HEAT SAVINGS

We have good reason to believe that carpeted floors will lessen fuel consumption. Thorough research is still to be done, but opinions from qualified engineers, based on preliminary data, indicate that this is a likely and important possibility.

Carpet is most obviously warmer subjectively. Objective data may be obtained through measuring the heat demand of carpeted rooms and non-carpeted rooms, and the subsequent translation of these readings into heat savings attributed to carpet's insulative properties.

Credible opinion has been expressed that the "warm-up" period in a carpeted room is of shorter duration than in an uncarpeted room. There is certainly the feeling of warmth even though temperatures may be low. This was demonstrated mechanically recently when Professor Henry Wright, of the architectural staff of Columbia University, built for Educational Facilities Laboratories a machine with which the surface temperatures of carpet and tile could be measured when installed over cold concrete slab flooring. The slab temperature was maintained at a constant 42° F. The surface temperature of the tile then read approximately 51° F., when that of the carpet sample was 62° F. The warmer carpet pile surface did not draw away heat fed into the room as the colder smooth surface material tended to do so. More research is contemplated.

AUDITORIUMS

The auditorium, in many cases, is already carpeted. This trend is growing. Carpet in the auditorium eliminates unwanted noise and provides sure-footing for those entering and leaving. The infrequent falls that do occur in carpeted areas are well cushioned and injuries are fewer.

ENTRANCE WAYS

Another important use which some colleges are making of carpet is in entrance ways to heavily trafficked buildings. These carpets, during bad weather, prevent tracking of dirt, salt and mud into the remainder of the buildings thereby avoiding a greater maintenance problem. A lot of work, time and money have been saved by tracking off the slosh on pile fabrics at entrances.

CARPET AS REPLACEMENT FLOOR COVERINGS

Removing old tiles, refinishing floors and installing new tiles can become a mammoth and expensive project when remodeling or renovating. It is much easier, more economical and more effective to use carpet as replacement floor coverings.

Carpets in old school buildings bring them completely up-to-date with the new. A small experiment, in one of your buildings, will convince you of this. This savings is being realized by a number of schools at all levels.

SLIDES OF CARPETED SCHOOLS

CONCLUSION

I have tried to point out some of the practical characteristics of carpet as a building material ... for schools.

We believe these to be the realistic advantages:

1. All room surfaces considered, it costs no more or very little more initially.

2. The tremendously favorable maintenance cost compared with other floor coverings will reduce costs and allow for replacement at the same time that a much higher appearance level is maintained.

3. By putting acoustical treatment on the floor, you retain needed flexibility in partitioning, allow for improved lighting, gain greater use of existing space and create a respectable, workable teaching-learning environment.

4. Carpet use represents a breakthrough --- a definite upgrading of environment --- which brings a semblance of respect which places of learning deserve and need.

Thank you for your interest.

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